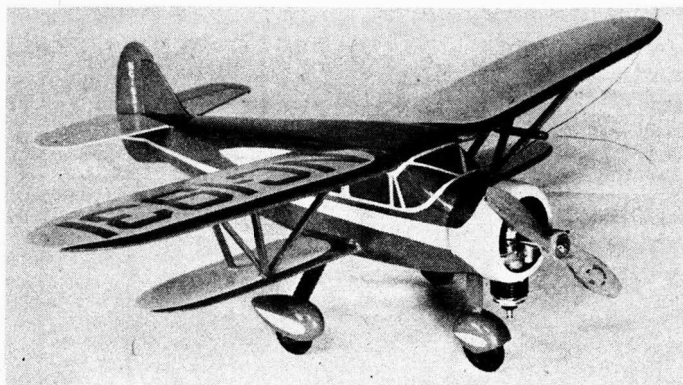
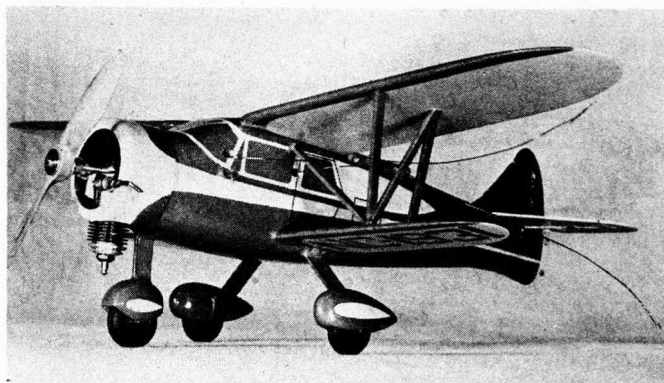




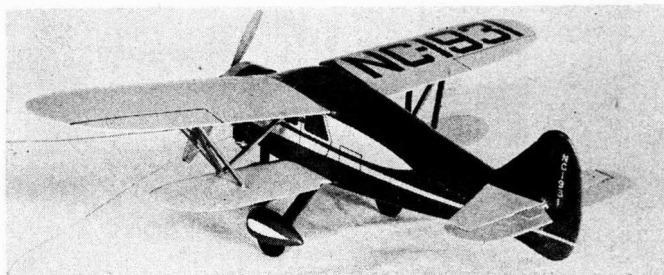
The three-wheel landing gear makes nosing over practically an impossibility. It also provides realistic take-offs and landings. Any .049 will supply ample power. The model, complete and all gassed up, weighs 5½ ounces.



The original was painted red and yellow with the color separation lines exactly the same as those on the full-scale ship. However, any color combination may be used. A good coat of fuel-proofer is applied to ship.

WACO "N" TRICYCLE

by Walter Musciano



The author flew his model successfully on 25' carpet thread lines. Lead-out wires are .016" music wire 10" long. The metal cowl for the model is available in hobby shops for 25¢. All construction is simple but very rugged.

One of the most advanced private-plane designs of pre-war days, the Waco "N" makes a fine model

● This neat five-place private craft was one of the finest deluxe personal planes made during the pre-war years. In model form, this tricycle beauty is an easy-to-build-and-fly ½A engine-powered control-liner. The nose wheel virtually eliminates broken propellers and nose-overs during landing. Very few model supplies are needed and the cowl, bellcrank, control horn, tank, etc. are stock commercial items readily available. Therefore, complete construction, ready to fly, should not require more than twenty hours for the average builder. Plans are presented full size.

FUSELAGE: Construction should begin with the fuselage. Cut the bulkheads from the prescribed material and cement together to form the rectangles shown in the sections. Saw the firewall to shape and drill hole for fuel feed line. While the bulkheads are drying, cut the fuselage sides from soft ¼" sheet

balsa and join at the rear. Install bulkhead "C" and cement well. When dry, pull sides together and add firewall "A" and bulkhead "B."

LANDING GEAR: Bend the landing gear struts carefully, following the pattern on the plans. Cut the plywood sandwich pieces and cement on each side of the main strut, then cement the entire assembly into the fuselage, using plenty of cement.

TAIL SURFACES: Cut the tail surfaces from hard ¼" sheet balsa. Sand smooth and join the elevators by means of the ¼" dowel. Add the control horn. When dry, attach the cloth hinges. Note that one-half of the hinge is cemented to the upper surface while the remainder is cemented to the lower surface.

CONTROL INSTALLATION: Cut the hardwood bellcrank mount to fit rather snugly between the fuselage sides. This can be made from any hardwood stock approximately ⅜" square in cross sec-

tion. ⅝" wide plywood would be acceptable for this purpose. Bolt or screw the bellcrank to the mount and attach the .016" music-wire lead-out lines. These should be 10" long. Bend the control rod to shape by offsetting the control-horn end while the bellcrank end is bent at 90°.

Carefully cut the fuselage slot and pass the control rod through it. Attach the rod to the bellcrank and solder a washer to hold it in place. Securely cement the bellcrank mount to the fuselage, slipping the lead-out wires through the fuselage holes. Cement the fuel tank to the fuselage sides or brace with scrap balsa.

COMPLETING THE FUSELAGE: Fuselage nose blocks are added at this time. Fit the roughly cut block in place and cement lightly. Carve the exterior and then remove and hollow as shown. Cement in place permanently. Cover the

R/C NEWS

Simultaneous Operation on BOTH Citizens Bands

By Vern C. MacNabb

The question is frequently asked, "Will CITIZEN-SHIP 465 and 27.255 interfere with each other?"

Neither radio frequency can interfere with the other. The high frequency cannot possibly be received on the lower 27.255, and the nearest harmonic of 27.255 to 465 is the 17th, which is negligible in a properly designed transmitter such as the CITIZEN-SHIP 27 Type LC.



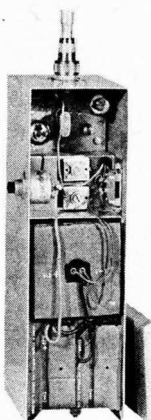
Sometimes the quench frequencies of two receivers will be the same and the quench signal of one will be picked up by the other when RECEIVERS are side by side. This is the only way interference can be obtained between these two bands.

If this should occur a slight readjustment of the quench coil tuning will eliminate this interaction.

Therefore we have the opportunity of multiple control with CITIZEN-SHIP 465 and 27.255, one frequency for rudder, the other on elevators, plus other combinations to give motor speed, brakes on wheels, etc., depending on the ingenuity of the modeler.



NEW . . . CITIZEN-SHIP "27" LR, RECEIVER, is a hard tube (3V4) receiver giving a 5 to 1 plate current change assuring dependable operation with a Sigma 4F adjustable relay. Has indestructible fiber glass base 2 1/2 x 1 3/4"; height of unit 2 1/4" and weighs only 4 ounces; price\$24.95



NEW . . . CITIZEN-SHIP "27" LC hand held transmitter (shown at left) for use on new "examination free" 27.255 kc frequency is completely self contained. Using a 3-section plug in antenna 48 inches long and two 3V4 tubes it gives extra high radio output. Factory tuned and adjusted for optimum performance. Weighs just 4 lbs. complete with batteries; dimensions 3" x 4" x 9". With tubes and crystal, price less battery.....\$39.75

RECEIVER model CR for 465 mc Citizens band; ready to "fly out of box".....\$29.25

TRANSMITTER model CC for 465 mc band; price less batteries.....\$39.75

Citizen-Ship SN escapement.....\$ 9.95
Good Bros. 4 position escapement.....13.50
Citizen-Ship Test Meter.....19.95
Bell Crank and Rudder Horn......75

VERNON C. MacNABB CO.

909 Westfield Blvd., Indianapolis 20, Ind.

WACO "N"

bottom with 3/16" sheet, watching the direction of the grain. Now, cover the fuselage top, beveling the forward portion to provide a slot in which the wing will fit, trailing edge first. Apply two coats of sanding sealer and sand smooth.

WINGS: The wings are very simple and construction is started by cutting the wing joiners from 3/32" plywood. Next, cut the leading edges to length and cement to the joiners. Pin one leading edge directly over the plan and cut rectangles from 1/16" sheet balsa measuring 1/4" x 1 1/16" for the upper wing and 3/16" x 1 3/16" for the lower wing.

Cement these rectangles to the leading edge that was pinned to the plan and add the trailing edge and solid wing tip. It will be found that the correct dihedral is automatically formed by the joiners. Also note that only the top wing requires a center section.

When the wing structures are complete, shape the leading edge, ribs and trailing edge as shown in the side view. Sand well. Recement all joints and cover with light silkspan using thin cement or thick dope as the adhesive.

Clear-dope the wings three times, sanding lightly with finishing paper between coats.

FINAL ASSEMBLY: Applying liberal quantities of cement, attach the upper wing to the fuselage by fitting it into the slot formed by the previously attached fuselage top. Fillet the wing by applying cement all around the joint.

In order to attach the lower wing, a slot must be cut up through the fuselage bottom to the joiner location shown. This task is eased by the grain direction of the fuselage bottom. Save the piece that is removed.

Carefully fit the wing joiner into the

WACO "N"

slot and check to make certain the lower wing is parallel to the upper wing incidence angle. This should be zero. Cement well and replace the balsa into the slot.

Wheel pants are made from $\frac{3}{16}$ " sheet. Four pieces are laminated to form one pant. See pant section on plans. Cement the $\frac{1}{16}$ " sheet balsa strut fairings in place. Apply sanding sealer and sand well.

Cut fin and rudder to shape, sand well, applying sanding sealer and sand again. Be certain to offset the rudder $\frac{1}{4}$ ", when cementing, to turn the model away from the center of the circle.

Metal cowls are for sale at 25c that fit this model perfectly. These cowls even are cut out to receive the engine cylinder.

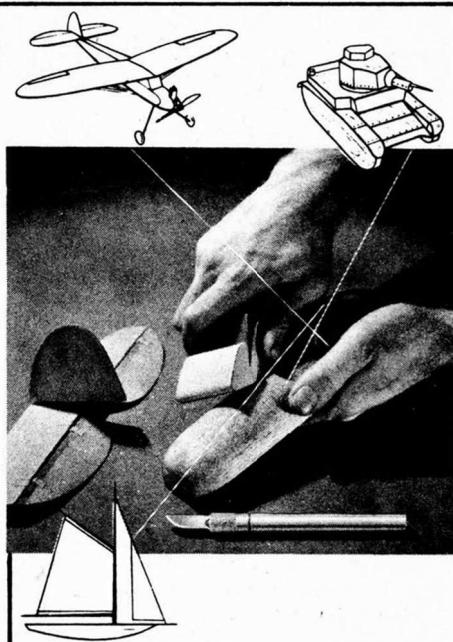
The engine is screwed to the firewall after the latter has received several coats of fuel-proofer. The cowl is held in place with $\frac{1}{2}$ " straight pins driven into the firewall.

FINISHING: Our model is colored red and yellow. The color separation lines are identical to the full scale Waco "N," but any color combination can be used. Two coats will produce an acceptable paint job. All trim is Trim-Film. When completed, apply a coat of clear fuel-proofer to the entire model. Paint the struts, cement in place, and fuel-proof.

FLYING: Flying is quite simple. Our 5½ ounce model was flown successfully on 25' carpet thread lines. Take-off is instantaneous; just apply slight, very slight, "up" elevator to lift the nose wheel off the ground. When landing, try to have the main wheels touch first for a realistic landing. Once on the ground, let the model roll to a stop straight away instead of trying to force it to follow the circle arc.

BILL OF MATERIALS (Balsa unless otherwise specified)

- 1- $\frac{1}{16}$ " x 2" x 36" (hard).....Wing ribs, empennage, strut fairings, bulkheads, struts
- 1- $\frac{3}{32}$ " x 2" x 12" (plywood).....Wing joiner, firewall, aux. bulkhead, landing gear sandwich, bellcrank mount
- 2- $\frac{3}{16}$ " x 3" x 36" (soft).....Wing tips; wing leading & trailing edges; fuselage sides, top and bottom; wheel pants
- 1-2" x 1" x 3" (soft).....Nose blocks
- 1- $\frac{1}{4}$ " x $\frac{3}{4}$ " x 18".....Leading edge (upper wing)
- 1- $\frac{1}{8}$ " x $\frac{1}{2}$ " x 18".....Trailing edge (lower wing)
- .049" music wire, 12" long; $\frac{1}{16}$ " music wire, 12" long; .016" music wire, 24" long; 2 oz. clear dope; commercial cowl; straight pins; small tube cement; 2 oz. red dope; 2 oz. yellow dope; nylon bellcrank (medium); brush; fuel-proofer; control horn; screws; tank; sandpaper; Cub .049X or equivalent engine.



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